

PHN 13,241
GERARDUS C.P. LOKHOFF
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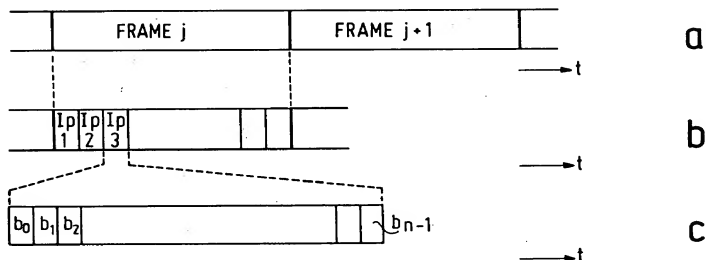


FIG. 1

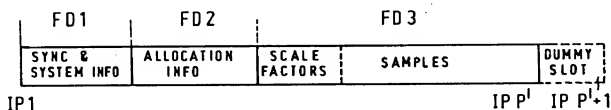


FIG. 2

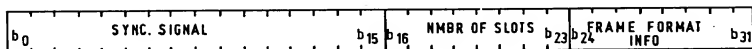


FIG. 3

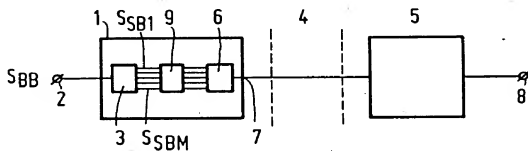


FIG. 4

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| BR bitrate (kbits/s) | Fs sample freq. (kHz) | B # slots in a frame |
|----------------------------|-----------------------------|-------------------------|
| 128 | 32 | 48 |
| | 44.1 | 34 + padding |
| | 48 | 32 |
| 192 | 32 | 72 |
| | 44.1 | 52 + padding |
| | 48 | 48 |
| 256 | 32 | 96 |
| | 44.1 | 69 + padding |
| | 48 | 64 |
| 384 | 32 | 144 |
| | 44.1 | 104 + padding |
| | 48 | 96 |

FIG. 5

| bitrate (kbits/s) | total # frames in padding sequence | # frames with a dummy slot |
|----------------------|---------------------------------------|-------------------------------|
| 128 | 147 | 122 |
| 192 | 49 | 12 |
| 256 | 147 | 97 |
| 384 | 49 | 24 |

FIG. 6

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| | | | |
|---------------------------|-----------------|-----|--------------------------|
| Bit 24 : | Frame type | 0 | format A |
| | | 1 | format B |
| Bits 25 and 26: Copyright | | 0 0 | no copyright, own rec. |
| | | 0 1 | no copyright, software |
| | | 1 0 | copyright, own recording |
| | | 1 1 | copyright, software |
| Bits 27 - 31 : | Mode indication | | |

| | Sample Freq. | Emphasis |
|-----------|------------------|-----------------|
| 0 0 0 0 0 | Stereo 48 kHz | no emphasis |
| 0 0 0 0 1 | Stereo 48 kHz | 50/15 μ sec |
| 0 0 0 1 0 | Stereo 44.1 kHz | no emphasis |
| 0 0 0 1 1 | Stereo 44.1 kHz | 50/15 μ sec |
| 0 0 1 0 0 | Stereo 32 kHz | no emphasis |
| 0 0 1 0 1 | Stereo 32 kHz | 50/15 μ sec |
| 0 0 1 1 0 | reserved | |
| 0 0 1 1 1 | reserved | |
| 0 1 0 0 0 | 2 Chan. 48 kHz | no emphasis |
| 0 1 0 0 1 | 2 Chan. 48 kHz | 50/15 μ sec |
| 0 1 0 1 0 | 2 Chan. 44.1 kHz | no emphasis |
| 0 1 0 1 1 | 2 Chan. 44.1 kHz | 50/15 μ sec |
| 0 1 1 0 0 | 2 Chan. 32 kHz | no emphasis |
| 0 1 1 0 1 | 2 Chan. 32 kHz | 50/15 μ sec |
| 0 1 1 1 0 | reserved | |
| 0 1 1 1 1 | reserved | |
| 1 0 0 0 0 | 1 Chan. 48 kHz | no emphasis |
| 1 0 0 0 1 | 1 Chan. 48 kHz | 50/15 μ sec |
| 1 0 0 1 0 | 1 Chan. 44.1 kHz | no emphasis |
| 1 0 0 1 1 | 1 Chan. 44.1 kHz | 50/15 μ sec |
| 1 0 1 0 0 | 1 Chan. 32 kHz | no emphasis |
| 1 0 1 0 1 | 1 Chan. 32 kHz | 50/15 μ sec |
| 1 0 1 1 0 | reserved | |
| 1 0 1 1 1 | 1 Chan. 48 kHz | CCITT J.17 |
| 1 1 0 0 0 | Stereo 48 kHz | CCITT J.17 |
| 1 1 0 0 1 | 2 Chan. 48 kHz | CCITT J.17 |
| 1 1 0 1 0 | Stereo 44.1 kHz | CCITT J.17 |
| 1 1 0 1 1 | 2 Chan. 44.1 kHz | CCITT J.17 |
| 1 1 1 0 0 | Stereo 32 kHz | CCITT J.17 |
| 1 1 1 0 1 | 2 Chan. 32 kHz | CCITT J.17 |
| 1 1 1 1 0 | 1 Chan. 32 kHz | CCITT J.17 |
| 1 1 1 1 1 | 1 Chan. 44.1 kHz | CCITT J.17 |

FIG. 7

| mode | channel I | channel II |
|----------------|-----------|------------|
| stereo | left | right |
| 2 channel mono | program I | program II |
| 1 channel mono | program I | not used |

FIG. 8

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| allocation info | length of samples in bits | |
|--------------------|------------------------------|--|
| 0000 | - | (no samples or scale factors transferred) |
| 0001 | 2 | |
| 0010 | 3 | |
| 0011 | 4 | |
| 0100 | 5 | |
| 0101 | 6 | |
| 0110 | 7 | |
| 0111 | 8 | |
| 1000 | 9 | |
| 1001 | 10 | |
| 1010 | 11 | |
| 1011 | 12 | |
| 1100 | 13 | |
| 1101 | 14 | |
| 1110 | 15 | |
| 1111 | | not used to prevent incorrect sync detection |

FIG.9

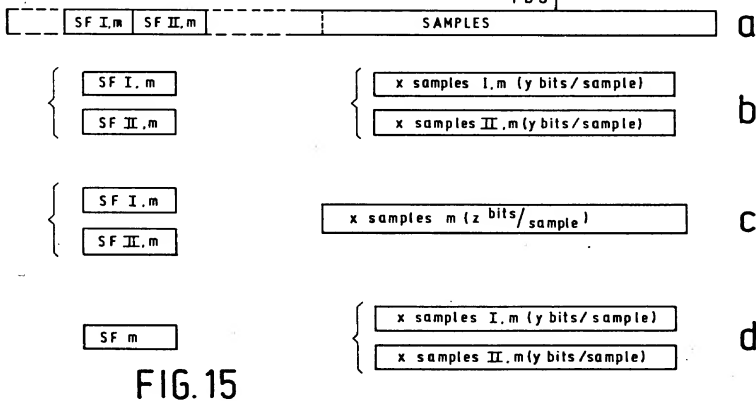
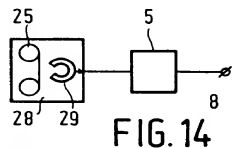
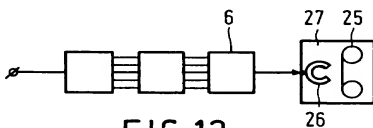
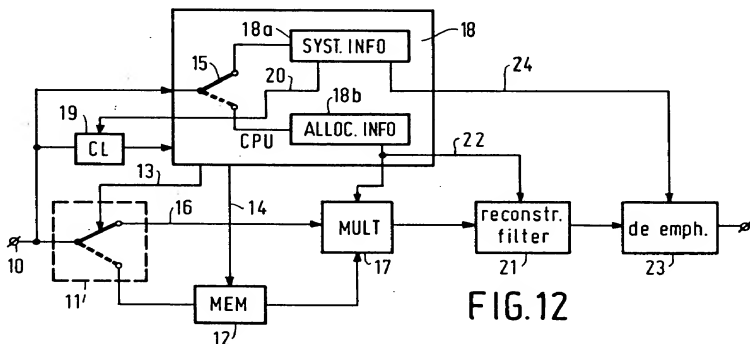
| | | | | | | | |
|---------|-------|------|-------|------|-------|------|-------|
| slot 2: | | | | | | | |
| I-1 | II-1 | I-2 | II-2 | I-3 | II-3 | I-4 | II-4 |
| slot 3: | | | | | | | |
| I-5 | II-5 | I-6 | II-6 | I-7 | II-7 | I-8 | II-8 |
| slot 4: | | | | | | | |
| I-9 | II-9 | I-10 | II-10 | I-11 | II-11 | I-12 | II-12 |
| slot 5: | | | | | | | |
| I-13 | II-13 | I-14 | II-14 | I-15 | II-15 | I-16 | II-16 |
| slot 6: | | | | | | | |
| I-17 | II-17 | I-18 | II-18 | I-19 | II-19 | I-20 | II-20 |
| slot 7: | | | | | | | |
| I-21 | II-21 | I-22 | II-22 | I-23 | II-23 | I-24 | II-24 |
| slot 8: | | | | | | | |
| I-25 | II-25 | I-26 | II-26 | I-27 | II-27 | I-28 | II-28 |
| slot 9: | | | | | | | |
| I-29 | II-29 | I-30 | II-30 | I-31 | II-31 | I-32 | II-32 |

FIG.10

| | | | | | | | |
|---------|-------|------|-------|------|-------|------|-------|
| slot 2: | | | | | | | |
| I-1 | II-1 | I-2 | II-2 | I-3 | II-3 | I-4 | II-4 |
| slot 3: | | | | | | | |
| I-5 | II-5 | I-6 | II-6 | I-7 | II-7 | I-8 | II-8 |
| slot 4: | | | | | | | |
| I-9 | II-9 | I-10 | II-10 | I-11 | II-11 | I-12 | II-12 |
| slot 5: | | | | | | | |
| I-13 | II-13 | I-14 | II-14 | I-15 | II-15 | I-16 | II-16 |

FIG.11

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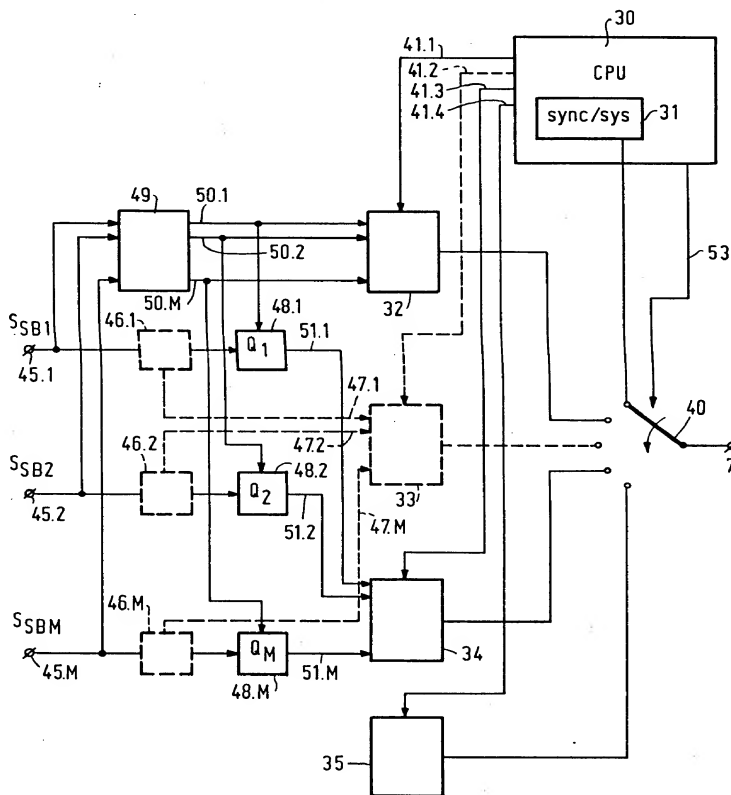


FIG. 16

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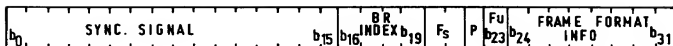


FIG.17

Bits 16 to 19 : bitrate index

| BR bitrate (kbits/ sec.) | BR index | sample frequency F_s | | |
|-----------------------------------|-------------|------------------------|---------------------|-------------------|
| | | 48 kHz # slots | 44.1 kHz # slots | 32 kHz # slots |
| 32 | 1 | 8 | 8 | 12 |
| 64 | 2 | 16 | 17 | 24 |
| 96 | 3 | 24 | 26 | 36 |
| 128 | 4 | 32 | 34 | 48 |
| 160 | 5 | 40 | 43 | 60 |
| 192 | 6 | 48 | 52 | 72 |
| 224 | 7 | 56 | 60 | 84 |
| 256 | 8 | 64 | 69 | 96 |
| 288 | 9 | 72 | 78 | 108 |
| 320 | 10 | 80 | 87 | 120 |
| 352 | 11 | 88 | 95 | 132 |
| 384 | 12 | 96 | 104 | 144 |
| 416 | 13 | 104 | 113 | 156 |
| 448 | 14 | 112 | 121 | 168 |

+ padding

Bits 20 and 21 : Sample Frequency

| | |
|-----|----------|
| 0 0 | 44.1 kHz |
| 0 1 | 48 kHz |
| 1 0 | 32 kHz |
| 1 1 | reserved |

Bit 22 : padding bit

'1' if the frame contains a 'dummy' slot, Otherwise '0'

Bit 23 : Future Use

reserved for future use,
'0' for the time being.

FIG.18

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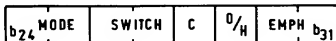


FIG.19

Bits 24 and 25 : Mode indication

| | |
|-----|------------------|
| 0 0 | stereo |
| 0 1 | intensity stereo |
| 1 0 | bilingual |
| 1 1 | mono |

Bits 26 and 27 : Intensity stereo mode switches :

| | | | |
|-----|----------|---------|--------------------------|
| 0 0 | subbands | 5 - 32 | in intensity stereo mode |
| 0 1 | subbands | 9 - 32 | in intensity stereo mode |
| 1 0 | subbands | 13 - 32 | in intensity stereo mode |
| 1 1 | subbands | 17 - 32 | in intensity stereo mode |

| | | |
|--------------------|---|---------------------|
| Bit 28 : Copyright | 0 | no copyright |
| | 1 | copyright protected |

| | | |
|-----------------------------|---|----------|
| Bit 29 : Original/Home Copy | 0 | Copy |
| | 1 | Original |

| | | |
|---------------------------|-----|--------------------------|
| Bits 30 and 31 : Emphasis | 0 0 | no emphasis |
| | 0 1 | 50/15 μ sec emphasis |
| | 1 0 | reserved |
| | 1 1 | CCITT J.17 |

FIG.20

Mono mode :

M = mono signal

| | | | | | | | | |
|---------|------|------|------|------|------|------|------|------|
| slot 2: | M-1 | M-2 | M-3 | M-4 | M-5 | M-6 | M-7 | M-8 |
| slot 3: | M-9 | M-10 | M-11 | M-12 | M-13 | M-14 | M-15 | M-16 |
| slot 4: | M-17 | M-18 | M-19 | M-20 | M-21 | M-22 | M-23 | M-24 |
| slot 5: | M-25 | M-26 | M-27 | M-28 | M-29 | M-30 | M-31 | M-32 |

FIG.21

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Intensity Stereo mode :

L = left channel, R = right channel, M = mono signal

Switch bits (bits 26 and 27) are 0 0 :

| | | | | | | | | |
|---------|------|------|------|------|------|------|------|------|
| slot 2: | L-1 | R-1 | L-2 | R-2 | L-3 | R-3 | L-4 | R-4 |
| slot 3: | M-5 | M-6 | M-7 | M-8 | M-9 | M-10 | M-11 | M-12 |
| slot 4: | M-13 | M-14 | M-15 | M-16 | M-17 | M-18 | M-19 | M-20 |
| slot 5: | M-21 | M-22 | M-23 | M-24 | M-25 | M-26 | M-27 | M-28 |
| slot 6: | M-29 | M-30 | M-31 | M-32 | | | | |

FIG. 22a

Switch bits are 0 1 :

| | | | | | | | | |
|---------|------|------|------|------|------|------|------|------|
| slot 2: | L-1 | R-1 | L-2 | R-2 | L-3 | R-3 | L-4 | R-4 |
| slot 3: | L-5 | R-5 | L-6 | R-6 | L-7 | R-7 | L-8 | R-8 |
| slot 4: | M-9 | M-10 | M-11 | M-12 | M-13 | M-14 | M-15 | M-16 |
| slot 5: | M-17 | M-18 | M-19 | M-20 | M-21 | M-22 | M-23 | M-24 |
| slot 6: | M-25 | M-26 | M-27 | M-28 | M-29 | M-30 | M-31 | M-32 |

FIG. 22b

Switch bits are 1 0 :

| | | | | | | | | |
|---------|------|------|------|------|------|------|------|------|
| slot 2: | L-1 | R-1 | L-2 | R-2 | L-3 | R-3 | L-4 | R-4 |
| slot 3: | L-5 | R-5 | L-6 | R-6 | L-7 | R-7 | L-8 | R-8 |
| slot 4: | L-9 | R-9 | L-10 | R-10 | L-11 | R-11 | L-12 | R-12 |
| slot 5: | M-13 | M-14 | M-15 | M-16 | M-17 | M-18 | M-19 | M-20 |
| slot 6: | M-21 | M-22 | M-23 | M-24 | M-25 | M-26 | M-27 | M-28 |
| slot 7: | M-29 | M-30 | M-31 | M-32 | | | | |

FIG. 22c

Switch bits are 1 1 :

| | | | | | | | | |
|---------|------|------|------|------|------|------|------|------|
| slot 2: | L-1 | R-1 | L-2 | R-2 | L-3 | R-3 | L-4 | R-4 |
| slot 3: | L-5 | R-5 | L-6 | R-6 | L-7 | R-7 | L-8 | R-8 |
| slot 4: | L-9 | R-9 | L-10 | R-10 | L-11 | R-11 | L-12 | R-12 |
| slot 5: | L-13 | R-13 | L-14 | R-14 | L-15 | R-15 | L-16 | R-16 |
| slot 6: | M-17 | M-18 | M-19 | M-20 | M-21 | M-22 | M-23 | M-24 |
| slot 7: | M-25 | M-26 | M-27 | M-28 | M-29 | M-30 | M-31 | M-32 |

FIG. 22d

FIG. 23

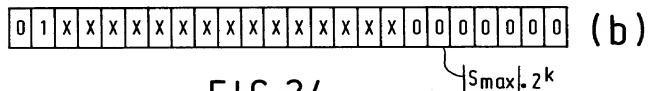


FIG. 24

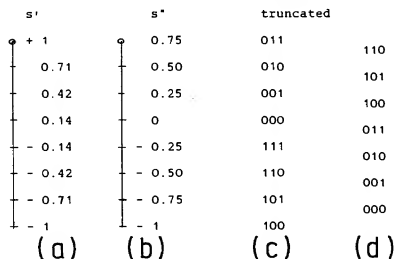


FIG. 25

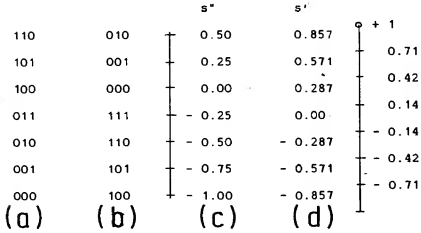


FIG. 26